Fiber Optic Sensing System for Entry Descent and Landing, Phase I

Completed Technology Project (2018 - 2019)

Project Introduction

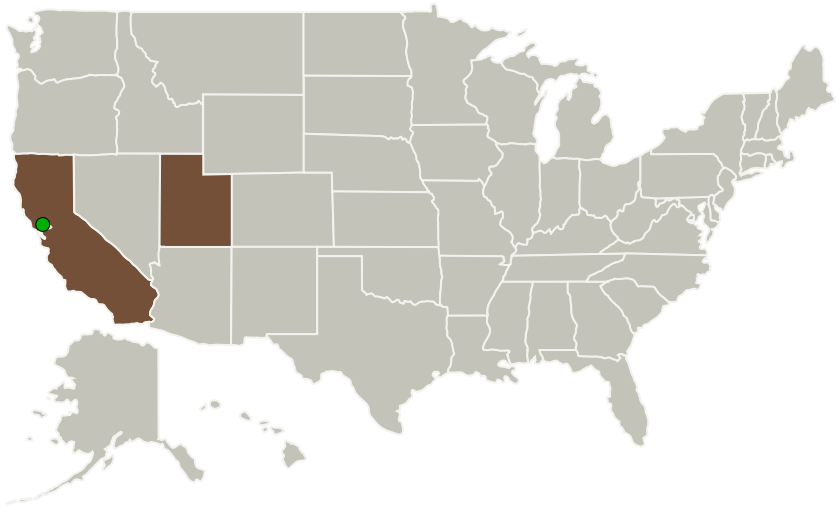
The proposed effort will establish technical feasibility of a high-performance size-, weight-, and power-optimized distributed fiber-optic sensing platform appropriate for deep spaceflight missions and amenable to harsh launch, entry, descent, and landing environments. Custom and commercial off-the-shelf sensors and sensor arrangements appropriate for multi-parameter sensing in thermal protection systems of interplanetary landers will be investigated. The proposed technology is applicable to both rigid and flexible thermal protection systems.

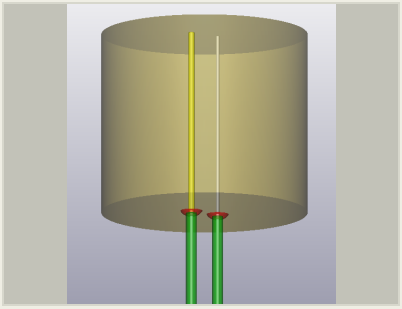
Anticipated Benefits

The proposed technology enables acquisition of real-time, in-flight temperature, pressure, and strain data related to structural dynamics analysis and health monitoring of flight and spaceflight vehicles. The technology can be applied to components, structures, and aerodynamic surfaces, both rigid and flexible.

Non-NASA commercial applications of the technology include renewable wind energy, commercial aerospace & aviation, oil & gas, automotive, nuclear energy, and perimeter security.

Primary U.S. Work Locations and Key Partners





Fiber Optic Sensing System for Entry Descent and Landing, Phase I

Table of Contents

Fiber Optic Sensing System for Entry Descent and Landing, Phase I

Completed Technology Project (2018 - 2019)

Organizations Performing Work	Role	Type	Location
Sequent Logic LLC	Lead Organization	Industry Small Disadvantaged Business (SDB)	North Logan, Utah
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Utah

Project Transitions

July 2018: Project Start

February 2019: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/141053)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Sequent Logic LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

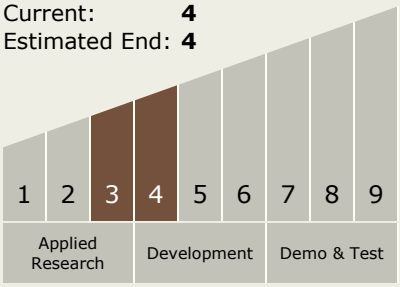
Carlos Torrez

Principal Investigator:

Ryan Seeley

Technology Maturity (TRL)

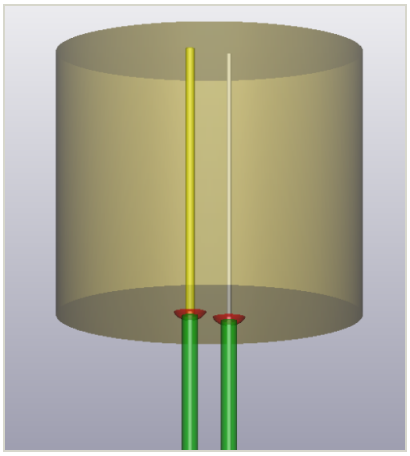
Start: **3**
Current: **4**
Estimated End: **4**



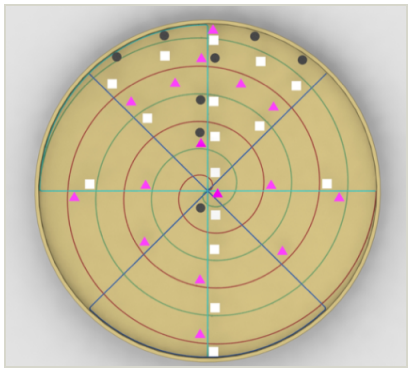
Fiber Optic Sensing System for Entry Descent and Landing, Phase I

Completed Technology Project (2018 - 2019)

Images



Briefing Chart Image
Fiber Optic Sensing System for Entry Descent and Landing, Phase I *(https://techport.nasa.gov/image/133372)*



Final Summary Chart Image
Fiber Optic Sensing System for Entry Descent and Landing, Phase I *(https://techport.nasa.gov/image/134681)*

Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.4 Vehicle Systems
    - TX09.4.6 Instrumentation and Health Monitoring for EDL

Target Destination

Others Inside the Solar System